Attorney's Docket No. 5577-217/RSW920000061US3 PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re: Brabson et al.
Serial No.: 09/760,975
Filed: January 16, 2001
For: METHODS, SYSTEMS AND COMPUTER PROGRAM PRODUCTS FOR PROVIDING TRANSACTIONAL QUALITY OF SERVICE

Examiner: Jinsong Hu
Group Art Unit: 2154
Confirmation No.: 4362

Date: May 16, 2005

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Candi L. Riggs

TRANSMITTAL OF APPEAL BRIEF
(PATENT APPLICATION--37 C.F.R. § 1.192)

1. Transmitted herewith is the APPEAL BRIEF for the above-identified application, pursuant to the Notice of Appeal filed on **March 15, 2005**.

2. This application is filed on behalf of
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3. Pursuant to 37 C.F.R. § 1.17(c), the fee for filing the Appeal Brief is:
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   Appeal Brief fee due: $500.00

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APPELLANTS' BRIEF ON APPEAL UNDER 37 C.F.R. §41.37

Sir:

This Appeal Brief is filed pursuant to the "Notice of Appeal to the Board of Patent Appeals and Interferences" filed March 15, 2005.

Real Party In Interest

The real party in interest is assignee International Business Machines, Inc., Armonk, New York.

Related Appeals and Interferences

Appellants are aware of no appeals or interferences that would be affected by the present appeal.

Status of Claims

Appellants appeal the final rejection of Claims 1 - 35, which as of the filing date of this Brief remain under consideration. The claims at issue as included in Appellants' response to the final Office Action of November 17, 2004 are attached hereto as Appendix A.

Status of Amendments

Two responses have been filed in the present case: An "Amendment" was filed July 1, 2004 in response to an Office Action mailed April 2, 2004 (hereinafter "First Action"). A "Request For Reconsideration" was filed January 14, 2005 in response to a final Office Action mailed November 17, 2004 (hereinafter "Final Action"). The rejections were maintained as indicated in an Advisory Action mailed March 28, 2005. No claims have been canceled in prosecuting the present application; therefore, Claims 1 - 35 remain for consideration on the present appeal.

Summary of Claimed Subject Matter

Appellants appeal the final rejection of independent Claims 1, 23, 27, and 32 - 35.

Independent Claim 1 is directed to a method for providing transactional quality of service. Transaction service level information for a data transmission transaction (Specification, page 14, lines 1 - 4) is provided to a communication process executing on a data processing system from an application executing on the data processing system requesting the data transmission transaction (Specification, page 14, lines 4 - 10). The transaction service level information is provided separate from data for the data transmission transaction (Specification, page 16, lines 2 - 5). A quality of service level associated with the data transmission transaction is determined based on the transaction service level information received by the communication process from the application (Specification, page 16, lines 10 - 13).

Independent Claim 23 is directed to a method for establishing a quality of service level for the transmission of data. An application program interface to a communications process is provided that both receives data to be transmitted by the communication process and receives quality of service information associated with the data to be transmitted (Specification, page 14, lines 1 - 10) so as to establish the quality of service level for the transmission of the received data without reference to the contents of the received data to be transmitted. (Specification, page 16, lines 10 - 13).

Independent Claim 27 is directed to a system for establishing a quality of service level for transmitted data. A communications process circuit comprises a send message application

program interface configured to receive data to be transmitted and quality of service information associated with the data to be transmitted. (Specification, page 14, lines 1 - 10; sendmsg() API 345 of FIG. 3). A policy service module (Policy Service Module 350 of FIG. 3) is configured to determine a quality of service level based on the quality of service information. (Specification, page 16, lines 10 - 13). A transmit/receive process (Transmit/Receive Process 370) is configured to transmit the received data utilizing the determined quality of service level. (Specification, page 17, lines 9 - 11).

Independent Claim 32 is directed to a system for providing transactional quality of service comprising means for providing transaction service level information for a data transmission transaction to a communication process executing on a data processing system (Specification, page 14, lines 1 - 4) from an application executing on the data processing system requesting the data transmission transaction. (Specification, page 14, lines 4 - 10). The transaction service level information is provided separate from data for the data transmission transaction. (Specification, page 16, lines 2 - 5). Means for determining a quality of service level associated with the data transmission transaction based on the transaction service level information received from the application is provided. (Specification, page 16, lines 10 - 13). The Application 335 and the sendmsg() API 345 of FIG. 3 provide structure corresponding to the means for providing transaction service level information for a data transmission transaction to a communication process. The Policy Service Module 350 and the QoS Policy Database 355 provide structure corresponding to the means for determining a quality of service level.

Independent Claim 33 is directed to a system for establishing a quality of service level for the transmission of data comprising an application program interface to a communication process which both receives data to be transmitted by the communications process and receives quality of service information associated with the data to be transmitted (Specification, page 14, lines 1 - 10) so as to establish the quality of service level for the transmission of the received data without reference to the contents of the received data. (Specification, page 16, lines 10 - 13).

Independent Claim 34 is directed to a computer program product for providing transactional network quality of service, comprising a computer readable medium having computer readable program code embodied therein, the computer readable program code comprising computer readable program code which provides transaction service level

information for a data transmission transaction (Specification, page 14, lines 1 - 4) to a communication process executing on a data processing system from an application executing on the data processing system requesting the data transmission transaction (Specification, page 14, lines 4 - 10). The transaction service level information is provided separate from data for the data transmission transaction. (Specification, page 16, lines 2 - 5). Computer readable program code determines a quality of service level associated with the data transmission transaction based on the transaction service level information received from the application. (Specification, page 16, lines 10 - 13).

Independent Claim 35 is directed to a computer program product for establishing a quality of service level for the transmission of data, comprising a computer readable medium having computer readable program code embodied therein, the computer readable program code comprising computer readable program code which provides an application program interface to a communications process that both receives data to be transmitted by the communications process and receives quality of service information associated with the data to be transmitted (Specification, page 14, lines 1 - 10) so as to establish the quality of service level for the transmission of the received data without reference to the contents of the received data. (Specification, page 16, lines 10 - 13).

Grounds of Rejection to be Reviewed on Appeal

Independent Claims 1, 23, 27 and 32-35 stand rejected under 35 U.S.C. §102(e) as being anticipated by United States Patent No. 6,631,122 to Arunachalam et al (hereinafter "Arunachalam").

Argument

I. Introduction to 35 U.S.C. §102 Analysis

Under 35 U.S.C. § 102, "a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." M.P.E.P. § 2131 (quoting *Verdegaal Bros. v. Union Oil Co.*, 814 F.2d 628, 631, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987)). "Anticipation under 35 U.S.C. § 102 requires the disclosure in a

single piece of prior art of each and every limitation of a claimed invention." *Apple Computer Inc. v. Articulate Sys. Inc.*, 57 U.S.P.Q.2d 1057, 1061 (Fed. Cir. 2000). "The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.'" M.P.E.P. § 2112 (citations omitted).

A finding of anticipation further requires that there must be no difference between the claimed invention and the disclosure of the cited reference as viewed by one of ordinary skill in the art. *See Scripps Clinic & Research Foundation v. Genentech Inc.*, 927 F.2d 1565, 1576, 18 U.S.P.Q.2d 1001, 1010 (Fed. Cir. 1991). In particular, the Court of Appeals for the Federal Circuit held that a finding of anticipation requires absolute identity for each and every element set forth in the claimed invention. *See Trintec Indus. Inc. v. Top-U.S.A. Corp.*, 63 U.S.P.Q.2d 1597 (Fed. Cir. 2002). Additionally, the cited prior art reference must be enabling, thereby placing the allegedly disclosed matter in the possession of the public. *In re Brown*, 329 F.2d 1006, 1011, 141 U.S.P.Q. 245, 249 (C.C.P.A. 1964). Thus, the prior art reference must adequately describe the claimed invention so that a person of ordinary skill in the art could make and use the invention.

Appellants respectfully submit that the pending independent claims are patentable over the cited reference for at least the reason that the cited reference does not disclose or suggest each of the recitations of the independent claims. The patentability of the pending claims is discussed in detail hereinafter.

A. Independent Claims 1, 32, and 34 are Patentable over Arunachalam

Independent Claims 1, 32, and 34 stand rejected under 35 U.S.C. §102(e) as being anticipated by Arunachalam. (Final Action page 2).

In rejecting Claim 1, the First Action cites to col. 4, lines 60-63, col. 6, lines 1-3 and 13-4 and col. 11, lines 8-11 of Arunachalam as disclosing "providing transaction service level information for a data transmission transaction to a communication process executing on a data

processing system from an application requesting the data transmission transaction, wherein the transaction service level information is provided separate from data for the data transmission transaction." First Action, p. 3. The First Action also cites to col. 6, lines 1-3 and col. 7 lines 60-63 of Arunachalam as disclosing "determining a quality of service level associated with the data transmission transaction based on the transaction service level information received by the communication process from the application." First Action, p. 3. Appellants submit that the cited portions of Arunachalam do not disclose or suggest each of the recitations of Claim 1 for at least the reasons discussed below.

Claim 1 states that the communication process and the application requesting the data transmission execute on the same data processing system. Claim 1 recites:

> 1. A method for providing transactional quality of service, the method comprising the steps of:
>
> providing transaction service level information for a data transmission transaction to a communication process executing on a data processing system from an application executing on the data processing system requesting the data transmission transaction, wherein the transaction service level information is provided separate from data for the data transmission transaction; and
>
> determining a quality of service level associated with the data transmission transaction based on the transaction service level information received by the communication process from the application.

Claims 32 and 34 include similar recitations. Appellants submit that the cited portions of Arunachalam do not disclose an application and a communication process executing on the same data processing system where the application provides transaction service level information for a data transmission transaction to the communication process separate from the data from the data transmission transaction. Furthermore, the cited portions of Arunachalam also do not disclose that a quality of service is determined based on transaction service level information received from the application.

Turning to the specifics of the rejection, col. 4, lines 60-63 of Arunachalam states:

> In accordance with the teachings of the present invention, the QoS Manager/Agent provides additional guarantee to the QoS parameters, namely, delay, jitter, bandwidth and reliability, pertaining to user applications. The complexity of

Arunachalam, col. 4, lines 60-63. This portion of Arunachalam says nothing about an application or a communication process or providing transaction service level information separate from data to the communication process as recited in Claim 1.

The First Action further cites to col. 6, lines 1-3 and 13-14, which state:

> QoS is specified in an IP packet in a Diff-serv network by marking a certain byte referred to as the Type-of-Service and Digital Signal (ToS/DS) byte. In the proposed framework,

Arunachalam, col. 6, lines 1-3; and

> QoS parameters like delay, jitter, Bit Error Rate (BER), throughput etc are dictated by the application requirements.

Arunachalam, col. 6, lines 13-14. While these portions of Arunachalam mention an application, there is no indication that the application specifies the transaction service level information to a communication process or that the communication process and the application are executing on the same data processing system. It is also unclear if the use of the word "application" is a reference to an application program or is a more generic reference to the reason for use of the network, such as for voice or video communications, downloads, web browsing or the like.

The First Action also cites to col. 11, lines 8-11 of Arunachalam, which states:

> The user terminal may be capable of marking an IP packet with a specific ToS/DS byte for the type of service it demands. In that case, it will indicate to wireless QoS agent 801 that the ToS/DS byte has been marked. Wireless QoS

Arunachalam, col. 8, lines 8-11. Appellants submit that this portion of Arunachalam does not disclose or suggest providing transaction service level information from an application to a communication process executing on the same data processing system separate from the data for transmission as recited in Claim 1.

Finally, in rejecting Claim 1, the First Action cites to col. 7, lines 60-63 of Arunachalam, which states:

> For the first packet of a new flow, QoS mapping function 803 extracts the ToS (or DS) byte of the IP header and the <source address/port, destination address/ports>field. The ToS/DS byte indicates the QoS desired by the IP packet. The

Arunachalam, col. 7, lines 60-63. However, this portion of Arunachalam also does not disclose that the transaction service level information is provided by an application to a communication

process separate from the data and is used to determine the quality of service of a transaction as recited in Claim 1. This portion of Arunachalam appears to describe the use of an IP header for determining QoS within the network, not between an application and a communication process.

In response to the foregoing analysis, the Final Action cites col. 8, lines 29-53 of Arunachalam as disclosing that the application provides transaction service level information to a communication process separate from the data for transmission and col. 4, lines 34-45 of Arunachalam as disclosing that the application and the communication process are executed on the same data processing system. Final Action, p. 6. Appellants respectfully disagree.

Column 8, lines 29-53 of Arunachalam states:

> Wireless QoS agent 801 is a key component of the QoS framework which allows for service negotiation between QoS agent and the end user. This is achieved by special messages through the signalling channel after the user is authenticated by the system. It is contemplated that the third generation wireless network will have its own set of service classes. The transit network will also have its own set of service classes. For example, an IP Diff-serv transit network may have three classes such as expedited forwarding (EF), assured forwarding (AF) and default best effort. In order to provide service guarantee for incoming or outgoing traffic, there has to be some agreement (generally referred to as the Service Level Agreement (SLA)) about the mapping between the service classes of the two networks. For each transit network that the third generation wireless network connects to, wireless QoS agent 801 in FIG. 8 maintains a mapping table (not shown) between the service classes of the two networks.
>
> In one embodiment, QoS agent is capable of exchanging service level agreements (SLA) with the peer QoS agent in the transit network (such as the Bandwidth Broker proposed by the Diff-serv WG). The SLA will determine the QoS mapping to a specific class of service (CoS) and the flow conditioning requirement as the traffic traverses one network boundary to another.

While this portion of Arunachalam does recite that the QoS agent can exchange service level agreements with peer QoS agents, there does not appear to be any discussion of basing the service level agreements on information obtained from an application executing on the same data processing system as the QoS agent. The Final Action asserts that col. 8, lines 29-53 discloses the recitations of Claim 1 by teaching "negotiating and mapping services classed based on Service Level Agreement by wireless Qos agent." Final Action, p. 6. However, the cited portion of Arunachalam describes negotiation SLAs for two different networks. This is consistent with what appears to be the function of the wireless QoS agent of Arunachalam of extending the wired IP network to a wireless network. See Arunachalam, col. 3, line 51 to col. 4, line 59. Merely because Arunachalam describes negotiation and mapping of service classes **between networks** does not disclose or suggest the recitations of Claim 1.

The Final Action also cites col. 4, lines 34-45 of Arunachalam as disclosing that the application and the communication process execute on the same data processing system. Final Action, p. 6. Column 4, lines 34-45 of Arunachalam state:

> According to the preferred embodiment of the present invention, the architecture also defines a QoS agent within the wireless access network which is a slave device to the IP QoS agent. The agent configures and enforces policies within the network devices's flow handling mechanism under the QoS agent's instructions. The primary function of the agent is enforcing flow classification, marking, mapping & treatment policies. FIG. 3 illustrates the various functional processes of the QoS agent. Wireless Qos agent 301 is interlinked with IP Qos manager 205 which as described in FIG. 2 is interconnected with other peer IP QoS agents via some busses 202 and endsystems 207. For illustration

This portion of Arunachalam says nothing about the QoS agent and an application that provides service level information for a data transmission transaction requested by the application executing on the same data processing system. In fact, Figure 3 of Arunachalam, which is referenced in the cited portion, clearly illustrates the wireless QoS agent 301 as located at a network device, not at an end system 207. In fact, neither the QoS Agent nor the QoS manager is illustrated as executing on the end system 207.

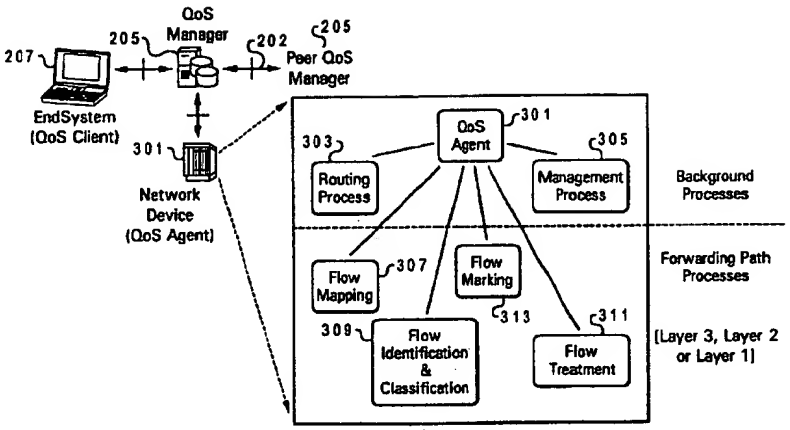

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Fig. 3

Furthermore, Arunachalam explicitly states that "[t]he preferred embodiment contemplates that the wireless QoS agent will be physically located within the BSC." Arunachalam, col. 12, lines 59-60. While the term BSC is never expressly defined in Arunachalam, it appears that the BSC is not the end user terminal in light of the discussion at col. 6, line 66 through col. 7, line 12. Applicants submit that, in the context of Arunachalam, the term BSC may refer to a Base Station Controller. Thus, the cited portions of Arunachalam do not appear to disclose or suggest that an application provides service level information to a communication process executing on the same data processing system as the application and that the service level information from the application requesting the data transmission transaction be used to establish the QoS for the data transmission transaction as recited in Claim 1.

The Final Action also relies on col. 4, line 52 to col. 5, line 35 of Arunachalam in rejecting Claims 1-2 and 9-13. Column 4, line 52 to col. 5, line 35 of Arunachalam states:

> 209. Wireless QoS agent 301 when implemented provides background processes and forward path processes. Forward path processes occur on layer, 1, layer 2 or layer 3 of the signalling protocol. Background processes include routing process 303, and management process 305. Forward path processes include flow mapping

> 307, flow marking 313, flow identification and classification 309, and flow treatment 311.
>
> In accordance with the teachings of the present invention, the QoS Manager/Agent provides additional guarantee to the QoS parameters, namely, delay, jitter, bandwidth and reliability, pertaining to user applications. The complexity of wireless link management centers around providing the flexibility of selecting various QoS provisioning techniques for next generation wireless systems and the future broadband wireless systems. A QoS agent is advantageous in guiding the Radio Resource Manager (RRM) in allocating radio channels (meeting particular coding, interleaving requirements) and software blocks for link layer Automatic Request for Retransmission (ARQ), and power control algorithms, etc. Also, the QoS agent will be able to help some of these algorithms to perform link adaptation depending on the current quality of the radio link and service applications, by fine-tuning certain changeable parameters (e.g., power control step size, number of retransmissions in ARQ etc). The traditional RRM performs dynamic channel (re)allocation when instructed by the QoS agent, for example, to move a user from a 1/2 code-rate channel to 1/4 code-rate, during a period of frequent error burst. All the above functions will be governed by three types of radio resource usage policies by the wireless QoS Agent: (1) SLA policies, (2) tariff policies, and (3) fairness policies.
>
> The base station subsystem of a third generation radio system provides these different types of radio channels (each providing different levels of QoS) and switches traffic to these channels. FIG. 4 depicts an example of a wireless QoS provisioning. The example shown in FIG. 4 envisions QoS provisioning utilizing various types of radio channels in the base station subsystem of the next generation wireless networks. Three layers are defined illustrating wireless service types 403, radio link layer 411, and wireless physical layer 415. Various classes of wireless services with specific QoS requirements are allocated radio link layer 411 resources (e.g., RPL 410) and radio channels RRM 405, to meet their service requirements, under the control of the wireless QoS agent 401. Different coder types are utilized based on the wireless service types 403. These include coder 1407 and coder 2409 and their corresponding interleaver 1408 and interleaver 2410. Interleaver 3413 is also depicted and utilized when best effort service type is desired. Additional versions of this design may also be implemented.

This portion of Arunachalam does not appear to say anything about an application or a communication process executing on the same data processing system or an application requesting a data transmission transaction providing transaction service level information separate from data to the communication process as recited in Claim 1.

In light of the above discussion, Appellants submit that the recitations of Claim 1 are neither disclosed nor suggested by the cited portions of Arunachalam. In particular, the cited portions of Arunachalam do not appear to describe an application and a communication process executing on a data processing system where the application specifies service level information to the communication process separate from the data for a communication transaction. In particular, it does not appear that the cited portions of Arunachalam are directed to the interactions between an application and a communications process as recited in Claim 1, but appear to be directed to the determination of the QoS of packets as they are transmitted through the network.

For at least the foregoing reasons, Appellants respectfully submit that independent Claims 1, 32, and 34 are patentable over the cited reference and that dependent Claims 2-22 are patentable at least by virtue of their depending from an allowable claim. Accordingly, Appellants respectfully request that the rejection of Claims 1 - 22, 32, and 34 be reversed based on the failure of the Examiner to establish a prima facie case of anticipation under 35 U.S.C. §102 for at least these reasons.

B. Independent Claims 23, 33, and 35 are Patentable over Arunachalam

Independent Claims 23, 33, and 35 stand rejected under 35 U.S.C. §102(e) as being anticipated by Arunachalam. (Final Action page 2).

Claim 23 is rejected based on the portions of Arunachalam cited above with reference to Claim 1. First Action, p. 5. However, Claim 23 recites:

> 23. A method for establishing a quality of service level for the transmission of data, comprising:
>
> providing an application program interface to a communications process which both receives data to be transmitted by the communication process and receives quality of service information associated with the data to be transmitted so as to establish the quality of service level for the transmission of the received data without reference to the contents of the received data to be transmitted.

Claims 33 and 35 include similar recitations. Appellants submit that the above-cited portions of Arunachalam do not even mention an application program interface ("API") of a communications process as recited in Claim 23. Thus, the cited portions of Arunachalam do not

appear to disclose an API that provides data and quality of service information associated with the data to a communications process that, in turn, establishes a quality of service level without reference to the contents of the data to be transmitted as recited in Claim 23.

In response to the foregoing analysis, the Final Action cites col. 5, lines 40-67 in support of the rejection of Claim 23. Final Action, p. 6. Column 5, lines 40-67 of Arunachalam states:

> provide a glimpse of its internal structure. A service requester interface 505 consisting of flow mapping 506a and parameter computation 506b blocks receives higher layer QOS requests 501. It provides feedback to higher layers 503, but more importantly, a call admission controller 507 makes a call admission decision based on the parameters computation (resource estimation). If admitted, the request goes to a Dynamic Resource Controller (DRC) and Radio Link Adaptation block (RLA) 511. DRC and RLA also receive an output from QoS monitor and flow control block 515 which contains parameter setting 516a, system QoS monitor 516b, radio channel QoS monitor 516c, and low layer flow control 516d. An interconnection is provided to RRM radio link resource modules 513 via control interfaces 514.
>
> A possible way to implement service mapping and dynamic QoS adaptation is over-the-air interface between the mobile and the base station. However, to achieve certain grade of service, QoS requirements should be met over the entire network between the source and the destination. This requires QoS negotiation between the third generation wireless network and the end user and possibly between the third generation network and the wireline network, as packets traverse through the network. The framework of the present invention allows for (a) negotiation of Service Level Agreement (SLA) between the wireless network and the wireline network, and (b) dynamic re-allocation of resources when there is a QoS degradation (as decided by the Frame Error Rate (FER) or some other criteria).

This portion of Arunachalam appears to relate to Figure 5 of Arunachalam, which is an internal functional diagram of a QoS agent. See Arunachalam, col. 3, lines 30-32. This interface is illustrated as to "higher layers," which are described as the IP layer in Figure 5. Appellants submit that the term "application program interface" is not a generic reference to an interface but refers to an interface used by application programs. There is no indication in the cited portions of Arunachalam that the service requestor interface is used by application programs to access the QoS agent for providing data and quality of service information as recited in Claim 23. Accordingly, Applicants submit that the service requestor interface does not disclose an "application program interface" as recited in Claim 23.

For at least the foregoing reasons, Appellants respectfully submit that independent Claims 23, 33, and 35 are patentable over the cited reference and that dependent Claims 24-26 are patentable at least by virtue of their depending from an allowable claim. Accordingly, Appellants respectfully request that the rejection of Claims 23 - 26, 33, and 35 be reversed based on the failure of the Examiner to establish a prima facie case of anticipation under 35 U.S.C. §102 for at least these reasons.

C. Independent Claims 27 is Patentable over Arunachalam

Independent Claim 27 stands rejected under 35 U.S.C. §102(e) as being anticipated by Arunachalam. (Final Action page 2).

The First Action rejects Claim 27 based on the same portions of Arunachalam cited against Claim 1 and reproduced above. First Action, p. 5. However, Claim 1 recites:

> 27. A system for establishing a quality of service level for transmitted data, comprising:
> a communications process circuit comprising:
> a send message application program interface configured to receive data to be transmitted and quality of service information associated with the data to be transmitted;
> a policy service module configured to determine a quality of service level based on the quality of service information; and
> a transmit/receive process configured to transmit the received data utilizing the determined quality of service level.

Appellants submit that the cited portions of Arunachalam do not disclose or suggest the specific configuration of the communication process circuit recited in Claim 27. For example, the cited portions of Arunachalam do not even mention a send message application program interface as recited in Claim 27.

In response to the foregoing analysis, the Final Action cites col. 5, lines 17-35 of Arunachalam in support of the rejection of Claim 27. Column 5, lines 17-35 of Arunachalam states:

> The base station subsystem of a third generation radio system provides these different types of radio channels (each providing different levels of QoS) and switches traffic to these channels. FIG. 4 depicts an example of a wireless QoS provisioning. The example shown in FIG. 4 envisions QoS provisioning utilizing various types of radio

> channels in the base station subsystem of the next generation wireless networks. Three layers are defined illustrating wireless service types 403, radio link layer 411, and wireless physical layer 415. Various classes of wireless services with specific QoS requirements are allocated radio link layer 411 resources (e.g., RPL 410) and radio channels RRM 405, to meet their service requirements, under the control of the wireless QoS agent 401. Different coder types are utilized based on the wireless service types 403. These include coder 1407 and coder 2409 and their corresponding interleaver 1408 and interleaver 2410. Interleaver 3413 is also depicted and utilized when best effort service type is desired. Additional versions of this design may also be implemented.

This portion of Arunachalam appears to describe a base station subsystem for a third generation radio system. The cited portions of Arunachalam do not even mention a send message application program interface as recited in Claim 27. As such, Appellants submit that Claim 27 is not anticipated by the cited portions of Arunachalam for at least these reasons.

For at least the foregoing reasons, Appellants respectfully submit that independent Claim 27 is patentable over the cited reference and that dependent Claims 28 - 31 are patentable at least by virtue of their depending from an allowable claim. Accordingly, Appellants respectfully request that the rejection of Claims 27 - 31 be reversed based on the failure of the Examiner to establish a prima facie case of anticipation under 35 U.S.C. §102 for at least these reasons.

II. Conclusion

In summary, Appellants respectfully submit that, with respect to Claims 1 - 35, the cited reference does not teach all of the recitations of the claims. Accordingly, Appellants respectfully request reversal of the rejection of Claims 1 - 35 based on the cited reference.

Respectfully submitted,

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APPENDIX A

1. (Previously Presented) A method for providing transactional quality of service, the method comprising the steps of:

providing transaction service level information for a data transmission transaction to a communication process executing on a data processing system from an application executing on the data processing system requesting the data transmission transaction, wherein the transaction service level information is provided separate from data for the data transmission transaction; and

determining a quality of service level associated with the data transmission transaction based on the transaction service level information received by the communication process from the application.

2. (Original) A method according to Claim 1, further comprising incorporating information corresponding to the quality of service level into data transmissions associated with the data transmission transaction, wherein the quality of service level information is incorporated separate from the data for the data transmission transaction.

3. (Original) A method according to Claim 2, wherein the step of incorporating information comprises the step of incorporating into at least one header of at least one of the data transmissions an indicator of quality of service for the at least one of the data transmissions.

4. (Original) A method according to Claim 2, wherein the step of incorporating comprises incorporating quality of service level information into an Internet protocol (IP) header field of data transmissions associated with the data transmission transaction.

5. (Original) A method according to Claim 4, wherein the quality of service level information comprises at least one of a type of service value and a differentiated services code point value.

6. (Original) A method according to Claim 2, wherein the data transmissions associated with the data transmission transaction are data transmissions transmitting data provided with a request from the application for the data transmission transaction.

7. (Original) A method according to Claim 2, wherein the data transmissions are data transmissions for a connection associated with a request from the application for the data transmission transaction.

8. (Original) A method according to Claim 2, wherein the data for the data transmission transaction is encrypted.

9. (Original) A method according to Claim 1, further comprising the steps of:

determining if the provided transaction service level information is provided for transactions associated with a connection of the communication process; and

establishing the determined quality of service level as the quality of service level for subsequent data transmissions associated with the connection if the transaction service level information is provided for transactions associated with a connection of the communication process.

10. (Original) A method according to Claim 9, wherein the step of establishing the determined quality of service level as the quality of service level for subsequent data transmissions associated with the connection comprises allocating system resources for a data processing system associated with the communication process which are based on the determined quality of service for the data transmission.

11. (Original) A method according to Claim 1, further comprising establishing the determined quality of service level as the quality of service level for data associated with a request for a data transmission transaction from the application.

12. (Original) A method according to Claim 11, wherein the step of establishing the determined quality of service level as the quality of service level for data associated with a request for a data transmission transaction from the application comprises allocating system resources for a data processing system associated with the communication process which are based on the determined quality of service for the data transmission transaction.

13. (Original) A method according to Claim 10, wherein the step of establishing the quality of service level comprises the step of establishing transmission parameters associated with the communication process which are based on the determined quality of service for the data transmission transaction.

14. (Original) A method according to Claim 1, further comprising the steps of:

determining if a response associated with the data transmission transaction is received by the communication process; and

allocating resources of a data processing system associated with the communication process to process the received response utilizing a quality of service level based on the determined quality of service of the data transmission transaction established for the data transmissions associated with the received response.

15. (Original) A method according to Claim 14, wherein the response comprises an acknowledgment of a data transmission associated with the data transmission transaction.

16. (Original) A method according to Claim 14, wherein the step of determining if a response associated with the data transmission transaction is received by the communication process comprises determining if a response received by the communication process is associated with a connection associated with the data transmission transaction.

17. (Original) A method according to Claim 14, wherein the quality of service level utilized to allocate resources of the data processing system is different from the determined quality of service.

18. (Original) A method according to Claim 1, wherein the step of determining a quality of service level comprises the steps of:

determining if the transaction service level includes an identification of a predefined quality of service level; and

utilizing the predefined quality of service level as the determined quality of service level if the transaction service level includes an identification of the predefined quality of service level.

19. (Original) A method according to Claim 1, wherein the step of determining a quality of service level comprises utilizing a policy/rule database to determine the quality of service level by providing at least a portion of the transaction service level information to the policy/rule database.

20. (Original) A method according to Claim 1, wherein the step of determining a quality of service level comprises utilizing a predefined quality of service level as the determined quality of service level if the transaction service level includes identification of the predefined quality of service level.

21. (Original) A method according to Claim 1, wherein the communication process comprises a TCP/IP kernel.

22. (Original) A method according to Claim 1, wherein the communication process comprises a communication protocol stack.

23. (Original) A method for establishing a quality of service level for the transmission of data, comprising:

providing an application program interface to a communications process which both receives data to be transmitted by the communication process and receives quality of service information associated with the data to be transmitted so as to establish the quality of service

level for the transmission of the received data without reference to the contents of the received data to be transmitted.

24. (Original) A method according to Claim 23, further comprising the step of incorporating quality of service level information into data transmissions separate from the received data so as to allow network devices to establish the quality of service level for the received data without evaluating the contents of the received data.

25. (Original) A method according to Claim 23, further comprising the step of associating the quality of service level for the transmission of the received data with responses received as a result of transmitting the received data so as to establish a quality of service level for processing responses to transmission of the received data.

26. (Original) A method according to Claim 23, wherein the quality of service level is established for all data transmitted for a connection associated with the communication process.

27. (Previously Presented) A system for establishing a quality of service level for transmitted data, comprising:

a communications process circuit comprising:

a send message application program interface configured to receive data to be transmitted and quality of service information associated with the data to be transmitted;

a policy service module configured to determine a quality of service level based on the quality of service information; and

a transmit/receive process configured to transmit the received data utilizing the determined quality of service level.

28. (Original) A system according to Claim 27, wherein the communications process comprises a TCP/IP kernel.

29. (Original) A system according to Claim 27, further comprising a quality of service policy database and wherein the policy service module is further configured to determine the quality of service level by referencing the quality of service policy database.

30. (Original) A system according to Claim 27, wherein the transmit/receive process is further configured to receive responses to the transmitted received data and associate the quality of service level of the transmitted received data with the received response.

31. (Original) A system according to Claim 27, further comprising:

a user connection control block which contains a handle to a quality of service policy associated with the transmitted received data; and

a transmission control block which contains a quality of service policy field which is set based on the quality of service policy of the user connection control block; and

wherein the transmit/receive process is further configured to prepare the data for transmission based on the quality of service policy field of the transmission control block.

32. (Previously Presented) A system for providing transactional quality of service, comprising:

means for providing transaction service level information for a data transmission transaction to a communication process executing on a data processing system from an application executing on the data processing system requesting the data transmission transaction, wherein the transaction service level information is provided separate from data for the data transmission transaction; and

means for determining a quality of service level associated with the data transmission transaction based on the transaction service level information received from the application.

33. (Original) A system for establishing a quality of service level for the transmission of data, comprising:

an application program interface to a communication process which both receives data to be transmitted by the communications process and receives quality of service information

associated with the data to be transmitted so as to establish the quality of service level for the transmission of the received data without reference to the contents of the received data.

34. (Previously Presented) A computer program product for providing transactional network quality of service, comprising:

a computer readable medium having computer readable program code embodied therein, the computer readable program code comprising:

computer readable program code which provides transaction service level information for a data transmission transaction to a communication process executing on a data processing system from an application executing on the data processing system requesting the data transmission transaction, wherein the transaction service level information is provided separate from data for the data transmission transaction; and

computer readable program code which determines a quality of service level associated with the data transmission transaction based on the transaction service level information received from the application.

35. (Original) A computer program product for establishing a quality of service level for the transmission of data, comprising:

a computer readable medium having computer readable program code embodied therein, the computer readable program code comprising:

computer readable program code which provides an application program interface to a communications process which both receives data to be transmitted by the communications process and receives quality of service information associated with the data to be transmitted so as to establish the quality of service level for the transmission of the received data without reference to the contents of the received data.